

# NEWSLINE

## FAMILY DAYS ISSUE

Published weekly for employees of Lawrence Livermore National Laboratory

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Vol. 25, No. 42



### FROM THE DIRECTOR

Bruce Tarter

## Something for everyone at Family Days 2000

**W**elcome to Family Days. During the next two days, our extended Laboratory family may share in our accomplishments as well as the tribulations of the challenges we face.

Family Days is an opportunity for us to open our doors and show the major scientific and technical advances we're striving to make in national security, energy resources, environmental quality, bioscience, and science and technology.

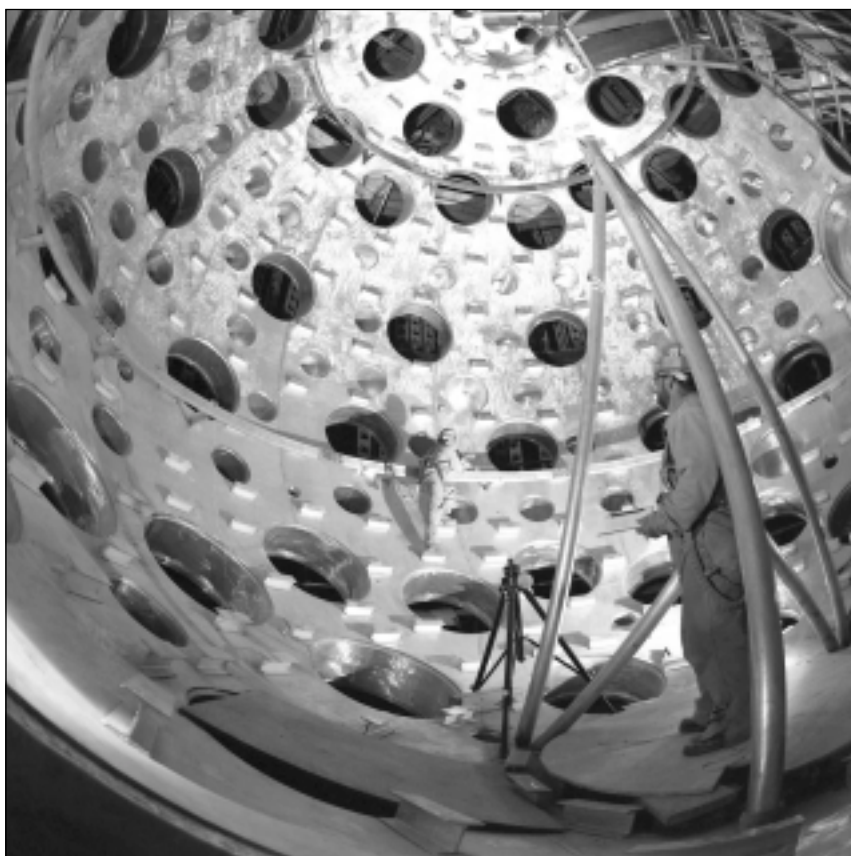
Over the last year, much attention has been focused on the major challenges to Laboratory programs and operations. We have upgraded physical and cyber security to meet new post-Cold War security threats and enhanced safety operations to meet the requirements of our rapidly evolving missions. Working with DOE, the University of California and experts from industry, we have put the project to build the world's largest laser, the National Ignition Facility, on track to fulfill its vital national security mission to ensure the safety and reliability of the nation's nuclear deterrent.

In the effort to meet these important operational challenges, we must not forget the great successes of our research endeavors. After all, translating basic science concepts into technologies that solve complicated real-world problems is the essence of what we do at the Laboratory. Family Days 2000 provides an opportunity to put the spotlight back onto our many recent technical and scientific accomplishments.

Take NIF, for example. In light of the press and publicity about budget and schedule issues, it's easy to overlook the technical quality of work on the laser. Work in optics, crystal growth and the other technology that has been put in place is a spectacular success. Visitors to NIF will get a glimpse of a unique scientific facility. Experiments conducted in the experimental facility will not only be vital to national security, but also have important implications for fusion as a future energy source and our understanding of the universe.

Biology and Biotechnology Research Programs at the Laboratory are flourishing. Visitors to BBRP's main facility, Bldg. 361, will be able to get an overview of the directorate's breadth of research efforts and unique capabilities such as macromolecular crystallography.

See **FROM THE DIRECTOR**, page



Whether it's the inner workings of the National Ignition Facility, such as the target chamber (above left), information on the Contained Firing Facility, materials science such as aerogels, or technologies such as laser peening (right, from top down), Family Days will provide an overview of the Lab's many areas of research.



## There's a few things to know before you go

Family Days will be held from 10 a.m. to 4 p.m. Saturday and Sunday, Oct. 21 and 22. All employees, their family and friends are invited.

If you plan on attending Family Days, you must have your LLNL badge to gain entrance to the Lab. Every employee who comes to the Lab for Family Days must either have a "Q" or an "L" badge valid on the LLNL site, or be accompanied by someone who does.

Individuals holding a "Q" or an "L" badge valid at LLNL may visit the Laboratory an unspecified number of times and may escort up to a total of 10 guests (including foreign nationals) each time they visit during Family Days weekend.

For each visit, a completed white form is required to bring U.S. citizen guests on site. Those forms will be turned in as you enter the Lab on Saturday or Sunday. The white form is available on the Family Days Web page accessible from the "Grapevine" home page (<http://www-r.llnl.gov>), or from your directorate security representative. For foreign nationals, a blue card must have been previously submitted.

### Where to park

Parking will be available in the southwest corner of the Lab, near Bldgs. 111 and 132, and in the Sandia lot off East Avenue. Parking for those with handicapped permits is available in parking lot C-1, east of the South Café, accessible through the South Gate.

### Entrances

The only entrances open for Family Days visitors are:

- The gate between Bldgs. 122 and 111, accessible from East Avenue or Mesquite Way. Retirees and foreign nationals must enter through this gate. (The entrance on West Gate Drive near the West Gate Badge Office will be closed.)
- The pedestrian gates between Bldgs. 219 and 319 on Avenue D, and between Bldg. 319 and the South Café (Bldg. 312). People who use these gates should park in the Sandia parking lot and use the crosswalks on East Avenue.
- The South Gate entrance will be closed to Family Days traffic, except for those with handicapped parking permits. No vehicle traffic will be permitted on South Mall Drive west of parking lot C-1.

### If you are working

It is important to minimize vehicle traffic on site during Family Days. People who must work on Saturday and Sunday and those who are working Family Days and must drive on site may use the South Gate to enter or leave the Lab before 9 a.m. After 9 a.m., use the East Gate to enter or leave the Laboratory. During Family Days, from 10 a.m. to 4 p.m. both days, P-cleared employees must be escorted on site by a "Q"- or an "L"-cleared person.



Are you game for  
**HOME Run and Fair?**

— Page 7



Women ready  
**to focus on future**

— Page 8



# What to see and what to do for Family Days

Here's your guide to the different programs, displays and demonstrations available during this year's Family Days. Unless otherwise noted, all events operate continuously both days.

## Biology & Biotechnology Research Program

### Bldg. 361

BBRP will feature a slide presentation and videos of current research running continuously in the auditorium. Flyers will also be available to help visitors through a self-guided tour, which will feature posters of some of our latest research, along with descriptions, posted throughout the building. Monitors in the building will be on hand to direct visitors to the auditorium and hand out flyers for the self-guided tour.

## Chemistry & Materials Science

### Bldg. 132N

Want to become a chemist? Come to Bldg. 132N, room 2684, and experiment with pH liquids found around your house. Separate the colors of food dyes using paper chromatography and learn how chemists detect and measure organic substances in mixtures.

### Bldg. 151

Experience nature's building blocks in the main southeast entrance. This hands-on display demonstrates that different materials have different densities.

In the East Parking Lot, there is a hands-on activity that allows operation of mechanical arms such as those used to handle hazardous and radioactive materials.

### Bldg. 235

"Billiards with Atoms" — In room 1251, see the accelerators that generate high-speed atoms and watch computer simulations of energetic collisions of nature's smallest "billiard balls." Open Saturday and Sunday, 10 a.m. to 1 p.m.

View alien-looking landscapes on the surface of pebbles, rusty nails and the eye of a bug through a high-resolution-scanning electron microscope, in room 1123 daily.

"Ever See an Atom?" — Now you can with one of the most powerful electron microscopes ever, "the transmission electronic microscope." See how atoms stack up to form crystals, in room 1121 on Saturday and Sunday from 10 a.m. to 2 p.m.

"Do Chemistry on a Computer" — See how our supercomputers can predict how materials will behave in the real world. Not only that, we can study materials that have never even been made. In room 1090 (Gold Room) daily.

"Gear Up With the SAT" — SAT is the Lab's "Space Action Team." Our expertise is decontamination and demolition, and we will show you how it is done. If you would like to volunteer, you can suit up in a cooling suit, or other types of various protective equipment and perform a simple task. Participants who suit up will be "awarded" a SAT family day badge with their picture. This activity will take place in the northwest corner outside Bldg. 222 on Saturday only, from 10 a.m. to 4 p.m.

## Computation

### Bldg. 113

Lawrence Livermore has two of the world's fastest supercomputers — ASCI Blue-Pacific (Bldg. 113) and ASCI White (Bldg. 451) — both part of the Accelerated Strategic Computing Initiative (ASCI). ASCI supports the Department of Energy's Stockpile Stewardship Program, whose mission is to maintain the safety and reliability of the U.S. nuclear stockpile without underground testing.

Visitors can view the ASCI Blue-Pacific platform, housed in Livermore Computing's machine room in Bldg. 113. Designed and built by IBM, the computer performs at nearly four trillion floating operations per second. ASCI Blue-Pacific consists of two separate and distinct machines: one on the open side, available for unclassified ASCI computing and for university



research through ASCI's Strategic Alliance Program, and a closed platform for use on classified stockpile stewardship computing.

In addition to serving the computational needs of ASCI researchers, Livermore Computing (LC) provides services to other LLNL programs and scientists. The principal computational platforms for these scientists are the Compaq AlphaServer 8400 Model 5/440 clusters, the Compaq AlphaServer 4100 Model 5/533 systems, and Compaq's AlphaServer SC. A segment of the Compaq cluster is located in the Bldg. 113 machine room.

A continuous video presentation in conference room 1104 will highlight clips from scientific animations generated by scientists around the Lab, representing calculations run on a variety of LC hardware platforms. The visualization subjects include computational chemistry, global climate modeling, neutron and radiation transfer, and studies of other physical phenomena.

There will be a historical display in conference room 1102, featuring some fascinating items from the history of computing.

### Bldg. 451

Visitors to Bldg. 451 can see the world's fastest computer, ASCI White, a system that marks a breakthrough in computing. At 12.3 teraflops (trillions of operations/sec), the IBM-designed RS/6000 SP system is the first computer to exceed the double-digit teraflop speed barrier. The system, developed by IBM under DOE's ASCI Partnership, is powered by 8,192 copper microprocessors and contains six trillion bytes (TB) of memory with more than 160 TB of IBM disk storage capacity. This storage capability is comparable to storing six times the entire book collection of the Library of Congress.

ASCI White, the third step in DOE's five-stage ASCI plan to achieve a 100 TeraOP/s supercomputer system by 2004, will be used by DOE to develop complex 3D scientific applications for use in supporting nuclear stockpile stewardship efforts.

## Defense & Nuclear Technologies

### Bldg. 111, A& X Divisions

Several computers will be set up in Bldg. 111's California Room with "Supergoo" software, an "electronic funhouse mirror" that can manipulate digital photos of family members and guests. If anyone would like to have pictures loaded into the computer in advance, please contact Shirley Davis at 2-1869. Close-ups of the face are preferred. In addition, a selection of movies about Lab research will be running in the Poseidon Room.

### Bldg. 132

Defense & Nuclear Technologies (DNT) invites Lab families and guests to enjoy a series of displays in the front courtyard and lobby of Bldg. 132N. Models of various U.S. weapons, including the World War II-era nuclear devices "Fat Man" and "Little Boy," will

be arranged in the courtyard. Each model will include a brief explanation. In the lobby, posters will describe DNT's role in the national Stockpile Stewardship Program and the Lab's contribution to the JASPER experiments in Nevada. The DNT Coloring Book, always a hit with youngsters, will be available in the lobby, and this year we will introduce the DNT Activities Book for middle-school students.

Also in the lobby of Bldg. 132N, the ASCI Program will feature a poster display on the history of supercomputing at LLNL; beginning with archive photos of the 1952 Remington-Rand Univac I, the Lab's first computer, and ending with LLNL's ASCI White computer, the most powerful ultra-computer in the world. In addition, ASCI will run videos on supercomputing and simulations at LLNL, plus displays that chronicle ASCI's recent achievements and technology.

Finally, in and around the lobby of Bldg. 132N, B Division will display several posters and videos of its work, including the High Explosives Applications Facility, proton radiography, the Stand-off Land Attack Missile (SLAM), the Nuclear Explosives Search Team and the Contained Firing Facility at Site 300.

### Bldg. 191

The High Explosives Applications Facility (HEAF) will be open during Family Days from 10 a.m. to 2 p.m. HEAF, the LLNL center for the study and testing of chemical high explosives, is a state-of-the-art explosives research facility that contains a wide variety of experimental capabilities.

A self-guided tour of the explosives test area will allow visitors to see three of the largest explosives firing tanks: the 10-kilogram spherical tank, the 100-millimeter gun and gun tank, and a 1-kilogram firing tank. These are computer-controlled, hydraulically operated tanks where up to 10 kilograms (22 pounds) of explosives can be safely tested. There will also be videos, posters and displays along the tour route.

## Energy & Environment

### Bldg. 543

The main lobby will feature a display of energy work around the theme, "Everybody Has a Stake in Energy," as well as free balloons for kids.

Also in the lobby, there will be an exhibit of a high-power flywheel rotor that can be used for applications such as back-up power during electrical power failures. This area will also feature an Inductrack magnetic levitation system for viewing and for hands-on demonstration of the magnetic-levitation principle. This will be accompanied by a continuously run video.

Posters will be displayed showing the work the Energy Programs are doing in the Applied Energy Technologies area and on the national nuclear waste repository at the Yucca Mountain Site, Nev. The Fission Energy and Systems Safety Program will display posters on their work in the area of nuclear materials management. These posters address such topics as the United States' purchase of highly enriched uranium from Russia; the storage and transportation of nuclear materials; and the global context of nuclear safety, materials disposition and nonproliferation.

See **FAMILY DAYS GUIDE**, page 3

## Newsline

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FAMILY DAYS GUIDE

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GEOSCIENCES & ENVIRONMENTAL  
TECHNOLOGY DIVISION

Trailer 1403

Tour the anatomy of a volcano in room 1004 with the aid of color posters, videos of eruptions and Internet connections to volcano Websites. Volcanism is one of the most energetic processes found in nature. While intense heat characterizes the lava erupted from volcanoes, heat alone does not explain why volcanoes erupt. Surprisingly, it is the amount of water present in molten rock that often determines how spectacular an eruption will be. Learn how water and heat make their contributions to bringing magma to the earth’s surface and check out Websites on current volcanic activity around the world. This exhibit will be open from 11 a.m. to 3 p.m. daily.

Trailer 1402/1403 lawn area

Come view a demonstration of aquifer transport. A small working model of groundwater flow in which the user can visualize the operation of normal water wells, artesian wells, interactions with lakes and streams, and understand the many ways in which groundwater may become “contaminated” will be available. Different technologies can be applied to clean up contaminated groundwater, and in the process, illustrate the true complexities and difficulties in making these remedial technologies economical and effective. There will also be posters of the division’s efforts in using heat to speed the cleanup of underground contamination. This demonstration will be offered from 10 a.m. to 3 p.m. daily.

The Yucca Mountain project display features posters that provide an overview of LLNL’s site characterization activities for the proposed nuclear waste repository at Yucca Mountain, Nev. LLNL is focusing on the engineered barrier system (EBS) — essentially the waste container, the waste form and materials introduced into the natural system — and on the near-field environment that interacts with the EBS. Samples of host rock, from the proposed repository horizon, will also be on display, and a handout describing the important points of the Yucca Mountain Project will be available.

GEOPHYSICS & GLOBAL SECURITY DIVISION

Trailer 1400 area

The Earthquake Visualization Center in Trailer 1403, room 1008, will feature displays of an interactive earthquake education computer program; an Internet connection to analyze the risk of geologic faults in the Bay Area; a Geographic Information System (GIS) interactive mapping display for the United States; videos of recent earthquake damage and response; and displays of local and California geology. Personnel will be available to assist in computer displays.

The Geologic Well-Logging Truck, used in oil and gas exploration, will be parked on Avenue B near Trailers 1402 and 1403. The display includes a walk-through of the control center, well-wench lowering system, and the well-logging “torpedo.” Personnel will be available to explain details of operation.

The Mobil Research Earthquake Deployment, also known as Mr. Ed, will also be parked on Avenue B near Trailers 1402 and 1403. Mr. Ed is a horse trailer converted into a field-ready (and helicopter-compatible) earthquake response system. Mr. Ed is available for deployment in earthquake aftershock areas throughout the world. The display includes a walk through examination of the control center and seismic equipment. Also, a “seismic stomp” is set up so that kids can create and record their own earthquake. Kids receive a certificate and “picture” of their earthquake. Personnel will be available to assist and answer questions.

Poster displays will be set up on the lawn area between Trailers 1402 and 1403, featuring division projects, including laboratory analysis of rocks; research to enhance oil and gas recovery in rock formations; status of U.S. research to monitor a Comprehensive Test Ban Treaty; and earthquake and nuclear explosion location techniques.

Bldg. 170

The National Atmospheric Release Advisory Center (NARAC) will demonstrate an emergency response to a radioactive or toxic release periodically throughout both days. In addition, computer monitors will continuously display NARAC capabilities and past responses, and the Department of Energy’s “Emergency Response Assets” video will be shown.

A weather map station will allow visitors to

color national weather maps, highlighting key meteorological phenomena like thunderstorms, fronts and low-pressure systems. A self-guided tour of NARAC will also present other displays. NARAC will be open 10 a.m. to 4 p.m. on Saturday, and 10 a.m. to 3 p.m. on Sunday.

In room 1091/92, there will be a poster display on UC’s 10th campus, UC Merced. The Lab just signed two memoranda of understanding with the university, which is expected to open in the fall of 2004. The posters describe the focus of the Energy and Environment Directorate and some of the research projects related to the Central Valley.

There will also be poster displays throughout the lobby by the directorate’s Atmospheric Sciences Division, which encompasses research considering climate, climate change and the role of human activities in climate change; atmospheric chemistry studies including analysis of the global aerosol cycle and climate forcings by atmospheric sulfur and carbon based aerosols; studies of urban dispersion and computational fluid dynamics, which include simulations of the Salt Lake City region in preparation for the 2002 Winter Olympics; and the Program for Climate Model Diagnosis and Intercomparison’s work on climate research.

Research by the Health and Ecological Assessment Division, a multidisciplinary organization that conducts research on a broad range of health and ecological effects of the use and disposition of chemicals in the environment, is also featured in a number of poster displays. The research ranges from the effects of transportation fuels on the environment to the intake of cancer-causing agents in cooked meat in the U.S. diet.

Engineering

Bldg. 131

Displays of selected projects will be available throughout the building, featuring the Engineering Directorate, its eight divisions and five technology centers. Technologies and areas highlighted include accelerator hardware, ergonomics displays, “Xtreme” Engineering, microtechnology devices, Web pages and pucks from the Plutonium Immobilization project (no plutonium will be in the pucks).

A special model analysis demonstration will be held in the NTED Division office from 10 a.m. to 1 p.m. each day. Bring a music CD and drive a shaker with your own acoustics.

In room 2017, Computer Aided Design (CAD) team members Gus Bernal, Brian Liebelt or Andy Fair will give a CAD demonstration using Parametric Technologies solid modeling software. They will be constructing and manipulating models similar to those used for engineering models when interfacing with multiple disciplines among the physicists, analysts, engineers and designers of the Weapons Program.

ELECTRONICS ENGINEERING  
TECHNOLOGIES DIVISION

Bldg. 153, first floor only

A dime-sized amplifier makes fiber-optic communications faster and clearer. A portable DNA analyzer helps detect and identify organisms in the environment. A tiny gripper inserted in a blood vessel treats aneurysms in the brain to ward off potential strokes. These and other micro-devices are made in the Electronics Engineering Technologies Division’s Engineering Microfabrication Laboratory. Come see how they are built.

MANUFACTURING & MATERIALS  
ENGINEERING DIVISION

Bldg. 231 High Bay

Find out if you could be the next Rapunzel. The Mechanics of Materials Group of the Manufacturing & Materials Engineering Division will demonstrate



Future researchers can have Fun With Science during Family Days.

some of its measurement capabilities by testing the strength of your hair. If you’re willing to donate a lock, we’ll measure its thickness and test it for strength and stretch. You’ll get to keep a graph of your test results, which will be suitable for framing. We’ll also keep a running log of how strength varies with color. Compare how your scalp measures up to other hair (both human and animal) and to some man-made fibers. You’ll also see what happens to hair strength when you bleach or blow-dry.

There will also be a static display of current work using the division’s 250-ton test machine to measure the fatigue performance of rebar under simulated earthquake conditions for CalTrans. Come see the machine and a video of the tests.

Both displays open 12 to 3 p.m. each day.

Bldg. 321A Main Bay

Visit the home of the largest fabricating machinery at the Lab. Capabilities include the ability to turn parts with diameters up to 77 inches by 67 inches long, and mill parts as large as 96 inches wide by 72 inches tall to tolerances within 0.0005 of an inch. These facilities include equipment capable of performing all aspects of general machining ranging from parts the size of an automobile to as small as a human hair.

Want to see how some great engineering ideas at the Lab look when they are completed? Visit Engineering Manufacturing and Services Section’s electronic chassis and cable fabrication facility on Saturday from 10 a.m. to 4 p.m. Visit the printed circuit board assembly facility, open daily.

Human Resources

AFFIRMATIVE ACTION & DIVERSITY PROGRAM

South and West Cafes

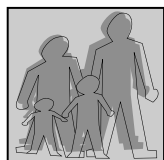
The Affirmative Action & Diversity Program will feature two displays highlighting the various diversity events and speakers that the Laboratory has hosted during the past year. These events are designed to help increase understanding, awareness and mutual respect for all members of the Laboratory’s workforce. AADP believes such efforts play an important role in ensuring that the Laboratory continues to be an employer of choice for individuals of all backgrounds. The displays recognize these events, as well as the many employees from throughout the Laboratory who helped contribute to their success.

CAREER CENTER

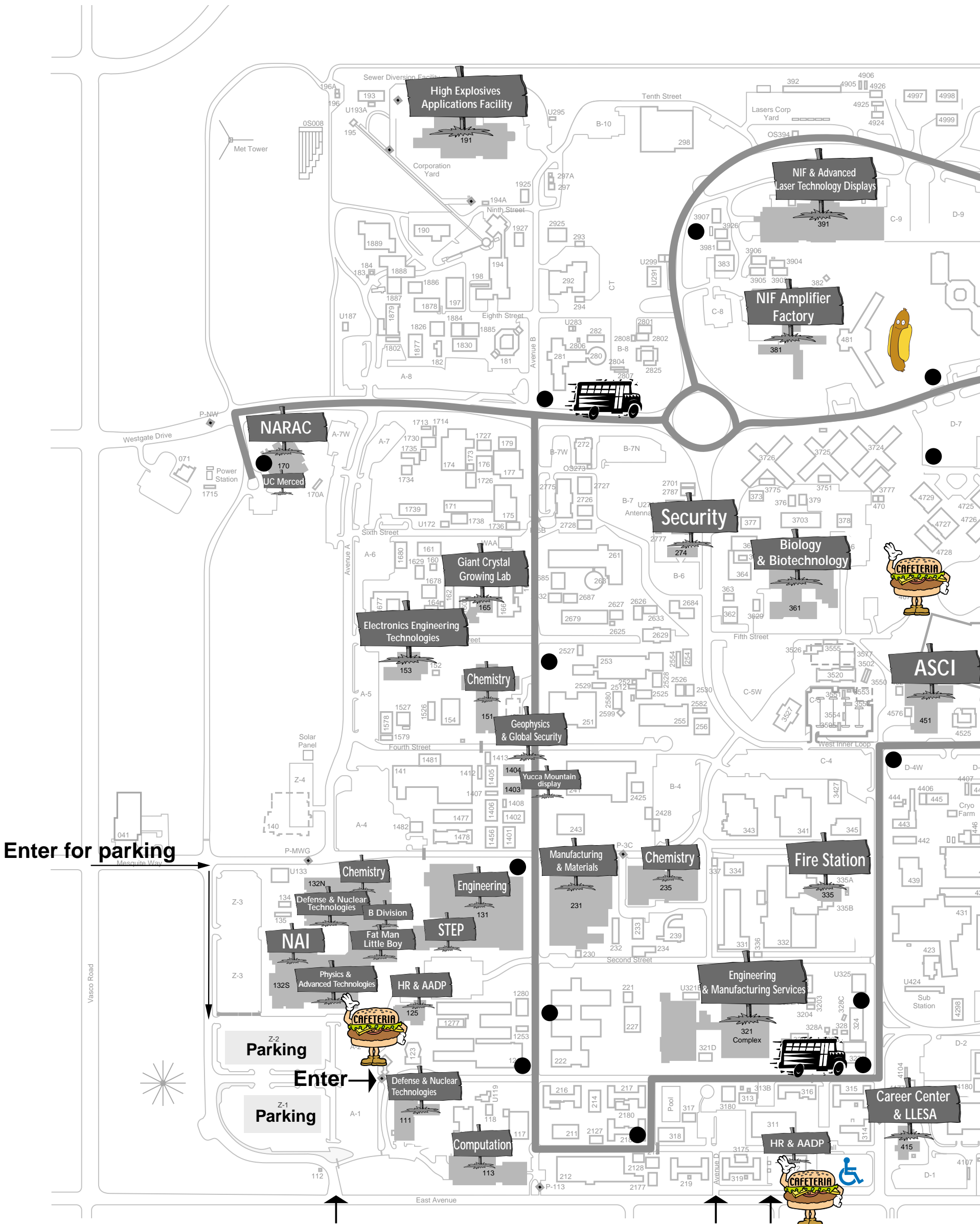
Bldg. 415, second floor

The Career Center, located on the second floor of Bldg. 415, will be open both Saturday and Sunday. Career Center staff will be available to answer questions and facilitate activities. The center will feature career development videos on topics such as networking, interviewing and resume writing running throughout the day. On display will be online personality assessment and related career development Websites, as well as a sampling of





# FAMILY DAYS GUIDE



Enter for parking

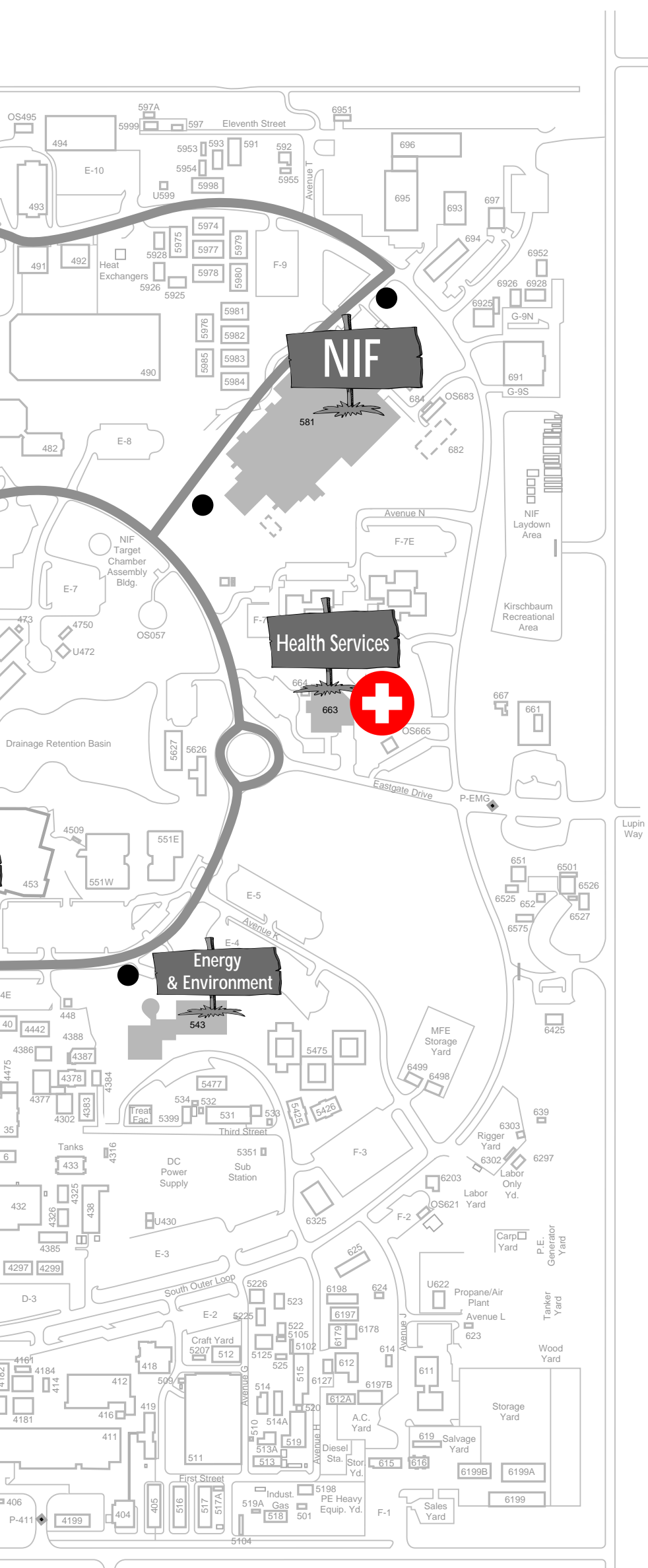
Enter at Avenue D or South Cafe

Parking at Sandia





# FAMILY DAYS GUIDE



Shuttle route,  
in both directions



## First Aid



## Food

**During Family Days, Safeguards & Security will continue to enforce rules regarding prohibited items. Weapons, cameras, recorders, binoculars, personal computers (including personal digital assistants, or PDAs), cell phones, illegal drugs and alcoholic beverages will not be allowed on site.**



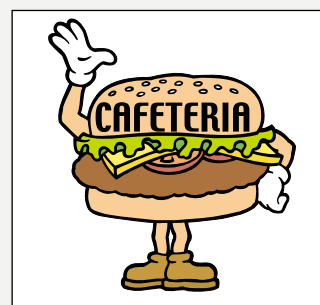
Shuttle service will run every 10-15 minutes in both clockwise and counter-clockwise loops.

In addition, special taxi services will be available by calling 2-TAXI.



**In case of emergency, call 911 from any Lab phone.**

**For Plant Services, call 2-9762.**



All three Laboratory cafés will offer a Family Days barbecue lunch on both Saturday and Sunday, from 11:30 a.m. to 1:30 p.m. Beverages and snack items including: chips, sodas, water, candy, cookies, popcorn and cotton candy will

also be available for sale at the Cafés from 10:30 a.m. to 2:30 p.m.

A hot dog, beverage and snack station will be located at the tent area between Bldg. 481 and Bldg. 482 and will be open from 11:30 a.m. to 2:30 p.m. All profits from the bottled soda/water at this location will be donated to a local charity.

The Lab shuttle service will take visitors within a short walking distance to all three dining areas as well as the food station.

## Food service locations

- West Café, Bldg. 125
- South Café, Bldg. 312
- Central Café, Trailer, 125
- Hot dog, beverage and snack station between Bldgs. 481 and 482

At each of the Cafés, the barbecue meal choices include:

- Hamburger, cheeseburger, gardenburger or sausage link (\$5)
- Hot dog (\$4)

All meals include a bag of chips, cookie, bottled beverage or low-fat milk and a piece of Halloween candy.

Barbecues will be set up outside each of the cafés. Popcorn, cotton candy and other snacks will be available at the cafés for an additional price. The dining/seating areas inside all cafés will be open, as well as the outside seating areas (weather permitting).

In addition, snack and beverage vending machines are located in buildings throughout the Laboratory. For locations of vending machines: see [https://www-ais.llnl.gov/llnl\\_only/docs/bsd/food/vending\\_machines.html#locations](https://www-ais.llnl.gov/llnl_only/docs/bsd/food/vending_machines.html#locations)



## FAMILY DAYS GUIDE

Continued from page 3

books, pamphlets, job listings and handouts. The Career Center library will be open for viewing and book checkout for Lab employees

### LLESA

#### Bldg. 415, first floor

On Saturday, LLESA staff will be present with information and displays on LLNL child care and employee exercise options. Lab logo attire will be available and sold at a special “Family Days” price, and LLESA will offer skills challenge games for preschool and school-age children. Every 30 minutes, LLESA will hold a free raffle for logo attire, and winners do not need to be present. On Sunday, the LLESA office will feature information and displays available to visitors on LLNL child care, employee exercise options and the many other activities and services LLESA has to offer.

## Lab Site Operations

### ENVIRONMENTAL PROTECTION

#### DEPARTMENT

##### Trailer 5475

Stop by to view posters and displays about environmental restoration and groundwater cleanup activities at the Lab site and Site 300.

### HAZARDS CONTROL DEPARTMENT

#### Fire Station

The Lab Fire Department will have its fire trucks and Fire Safety House on display and open for touring.

### HEALTH SERVICES

#### Bldg. 663

Health Services will provide first aid and medical treatment for employees, their families and visitors who become injured or ill during Family Days. Additionally, Health Services will offer personal health services including blood pressure, body fat testing and health advice for those planning travel to foreign countries. Free cholesterol tests will be available on a limited basis for the first 75 visitors at the Health Services clinic.

Tours of the facility will highlight the medical treatment and decontamination areas.

### SAFEGUARDS & SECURITY

#### Bldg. 274

Central Processing will take fingerprints from noon to 2 p.m. on Saturday only. Children will receive first priority during this process, however, we will also fingerprint adults.

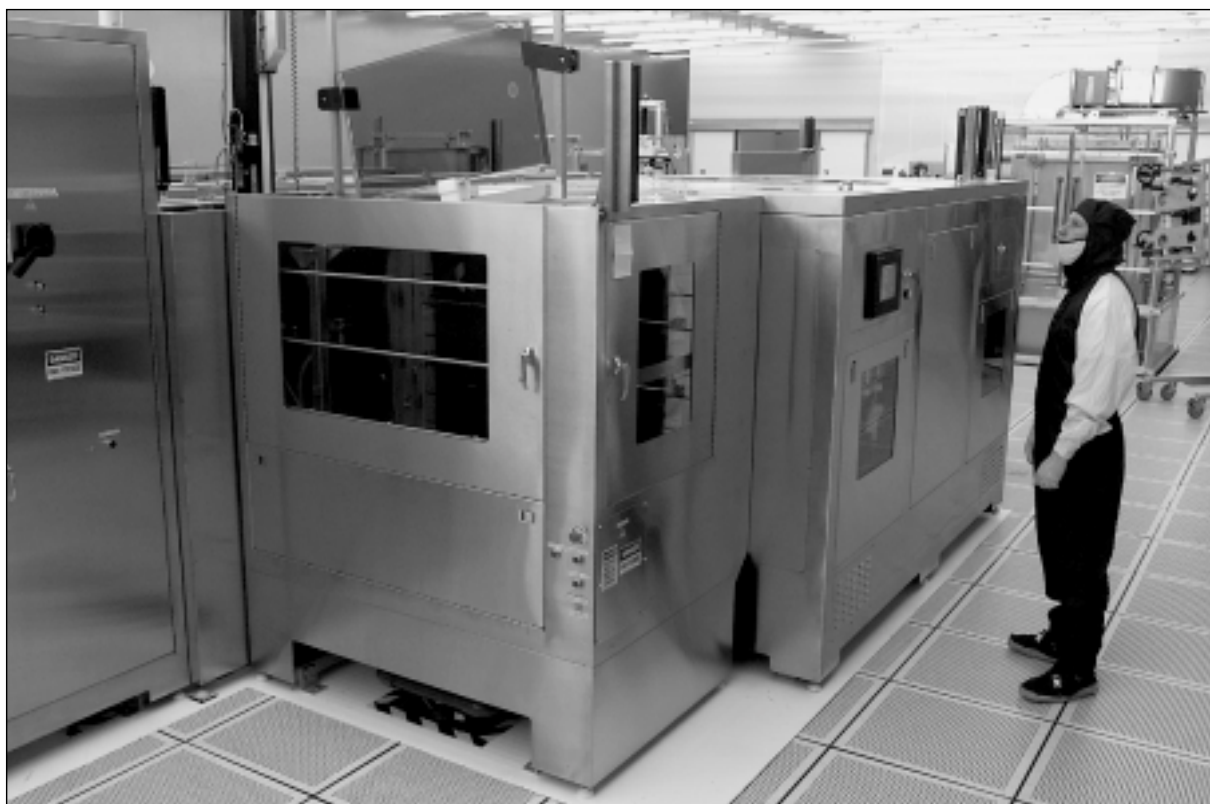
## National Ignition Facility

#### Bldg. 581

Take a tour through the giant National Ignition Facility (NIF). When completed it will be the largest laser ever built, having 60 times the energy output of its predecessor, the Nova laser. The NIF building is nearing completion and you will be able to walk in the actual building where the 192 laser beams will be located.

Start off on the special tour route where you can watch a short videotape about the NIF, and then look inside the optics assembly building, where more than 10,000 large-scale optics will be cleaned and prepared. Walk through a capacitor bay, where the giant power supplies will reside to provide electrical pulses to the laser flashlamps. Then, walk into one of the laser bays, where the beams will be 10- to 18-feet over your head, and see some of the huge laser enclosures that have been installed on top of concrete monolith structures.

Walk through the switchyard, a “jungle-gym” of steel where the beams will be redirected using hundreds of mirrors. Then head into the target chamber room where miniature targets will be heated to the temperature of the center of the sun inside the 10-meter-diameter target chamber (already installed). Along the tour route view NIF hardware and models including the capacitor bank model, the robotic laser-guided transporter that will be used to replace components, and the optical switch (plasma electrode Pockels cell).



BRYAN QUINTARD/PUBLIC AFFAIRS

Visitors can observe NIF laser glass washing technology, such as the Optics Processing and Development Lab.

See the actual woolly mammoth bones uncovered during the excavation for the NIF building foundation and a scaled-down model of a mammoth called “Niffy.”

All visitors must enter from the northeast side of the NIF site off Outer Loop Road and must exit to the southwest to Inner Loop Road. The entire route is approximately 800 feet long and is only partially wheelchair accessible. The last tour will begin a half-hour before the 4 p.m. close of Family Days each day to allow time to finish the tour.

### NIF AMPLIFIER FACTORY

#### Bldg. 381 High Bay

The High Bay is on the north side of Bldg. 381 and is accessible from a door on the west side or on the southeast corner of that portion of the building. From a viewing gallery located down the hallway, visitors may view the clean-room assembly area for the National Ignition Facility amplifier enclosures, or frame assembly units (FAUs). Each FAU “bus” will hold either five or 11 NIF amplifier modules, which contain powerful flashlamps and slabs of laser glass.

One of the key design features of NIF is the high efficiency of its multipass amplifiers, which requires them to be crammed into tight spaces. The FAUs meet this challenge through a combination of size, precision and cleanliness requirements. Full-scale NIF hardware can be seen in the assembly stations, plus prototypes of the amplifier line-replaceable units including a flashlamp cassette and an amplifier slab cassette. The tour route is wheelchair accessible.

### ADVANCED LASER TECHNOLOGY

#### DISPLAYS

##### Bldg. 391

In the main entry lobby on the south side of the building, visitors can watch a short videotape about the NIF and see hardware displays of the Laser Science and Technology Program, including: advanced solid-state laser components such as laser diodes and crystals, and large-aperture diffractive optics for NIF and space applications. The diffractive optics for NIF are full-beam-sized pieces of special glass that will sample and smooth each laser beam just before it enters the target chamber.

The beam sample will be used to estimate the beam energy that hits the target and a smoother beam spot on the target will provide better results for certain experiments. From a viewing gallery located off the lobby, view the NIF 5,000-square-foot optics processing clean-room facility (Class 100). This is where many of the large-aperture optics will be cleaned, coated and prepared for installation into their mechanical mounts. Actual NIF optics will be shown including laser amplifier slabs, potassium dihydrogen phosphate (KDP) crystal windows and fused-silica lenses. The tour route is wheelchair accessible.

### GIANT CRYSTAL GROWING LABORATORY

#### Bldg. 165

Bldg. 165 will have on display several, quarter-ton crystals made from potassium dihydrogen phosphate grown in support of NIF. These crystals will

be used for two purposes: to switch each large-aperture laser beam out of the optical cavity in the laser bay, where much of the amplification occurs, and to change the color of the beam from infrared to ultraviolet just before it enters the target chamber.

The crystals are grown in special, rapid-growth tanks from small “seeds” to the size of a few feet on a side, and then are sliced into windows for use in the two applications. Single, large crystals weighing as much as 600 to 700 pounds will be displayed, along with smaller 10- to 20-pound crystals. Posters describing the use of these crystals in the NIF, along with some of the advances that make it possible to grow crystals of this size, will also be on display.

Visitors will be able to observe crystals growing in large and small growth tanks, and watch a short film showing 45 days of growth condensed to two minutes. Visitors will enter at the west side of the building; wheelchair access is available at the south entrance.

## Nonproliferation, Arms Control & International Security

#### Bldg. 132S

NAI provides technology, analysis and expertise to aid the U.S. government in preventing the spread or use of weapons of mass destruction. Displayed in the main building lobby are posters describing NAI’s programs and a timeline of Lab contributions to national security through arms control and deterrence.

## Physics & Advanced Technologies

#### Bldg. 132S, room 1715

The Missile Defense & Space Logistics Program will have several displays for visitors during Family Days, including an air bearing table, a sensor hardware display, a propulsion case display and microsat posters and hardware. Program staff will be on hand to answer questions as well as to hand out badges with the program’s logo. There will also be coloring books for kids.

## Science & Technology Education Program

#### Bldg. 131, room 1029

STEP’s Fun With Science presenter Elvis Spencer, of the Lab’s Defense Technology Engineering Division, will offer interactive presentations and demonstrations for Family Days visitors. Fun With Science presentations explain science and technology at a level school-age children can understand.

Demonstrations take place at 11 and 11:45 a.m., 12:30, 1:15, 2 and 2:45 p.m. Saturday, and 11 and 11:45 a.m. and 12:30 p.m. Sunday.



# Step up to the plate for HOME's Run and Agency Fair

By Lynda Seaver

NEWSLINE STAFF WRITER

It's time to dust off those running or walking shoes, lace up those Rollerblades or squeeze into that Speedo.

The annual Run for HOME, not to mention the walk, skate and now swim for HOME, as well as the Agency Fair returns at 11:30 a.m. Oct. 27. Both events kick off the Lab's Annual HOME Campaign to raise money for employee-chosen charities and umbrella agencies such as the Tri-Valley Community Fund and United Way. Last year the campaign raised \$1.2 million; this year the campaign hopes to tack on even more with a goal of \$1.25 million.

"This campaign has always been about helping employees help their communities," explained Roger Werne, of the Nonproliferation, Arms Control and International Security Directorate, which is sponsoring the HOME Run and Agency Fair. Werne is chairing both events.

"Through the run and the fair, we present options to donating, give guidance and let employees take it from there," Werne said. "So we'd like all Laboratory employees to come out and see for themselves how Laboratory employee generosity benefits our local community."

Each year a Lab directorate is chosen to stage the Run for HOME and Agency Fair, which provides employees an opportunity to learn about the various charities to which they can contribute.

This year's HOME Run and Fair will have a new look, thanks in large part to a new location. Whereas previous fairs have been staged on South Mall near the South Cafeteria, this year's events will take over the Z-1 and Z-2 parking lots near the Director's Office (Bldg. 111).

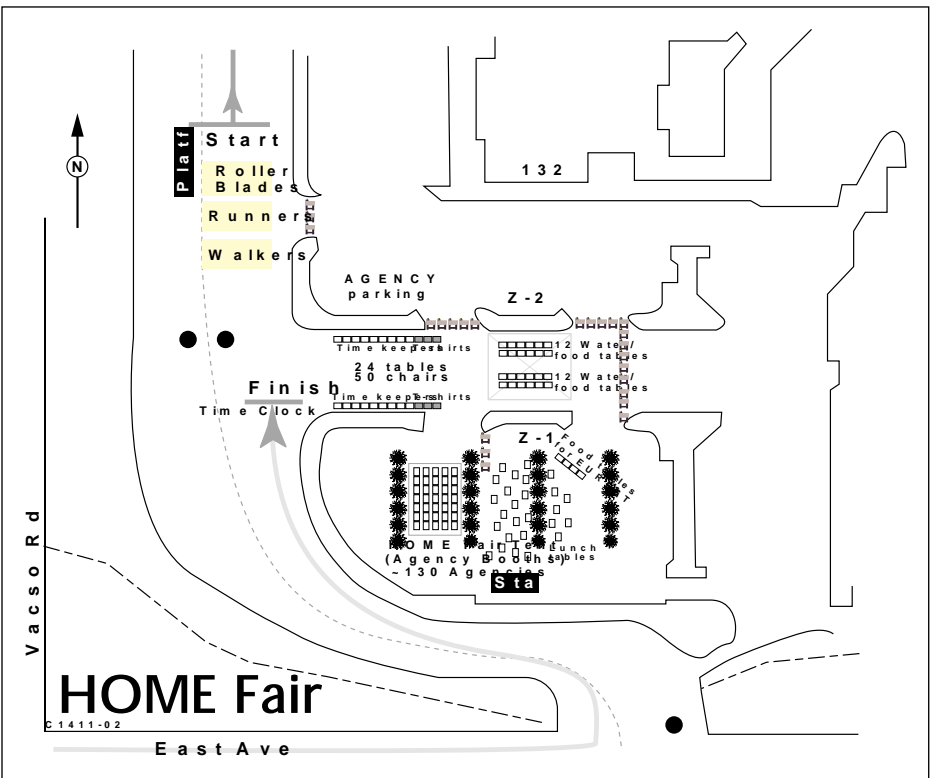
"It gives us more space to move around," said Werne. "These events have been growing significantly and this is the best way to accommodate everyone involved."

For example, last year's Agency Fair featured just over 90 charitable organizations setting up informational booths for employees. This year more than 130 agencies will be on hand.

While the fair will tone down some of the entertainment from previous years, the street carnival atmosphere will prevail. Black Cat Bone, a blues band, will provide entertainment on the main stage.

Food will also be available — a free lunch will be provided to those who participate in the 3K run/walk/skate or swim, while Eurest will have food carts available for others to purchase their meals.

The run/skate/walk will take place near Bldg. 132 and head north on West Perimeter Drive. The race course will then wind around Westgate Drive,



then head south on Vasco. Participants will turn on to East Avenue and then make a left back on to West Perimeter Drive, finishing at the Z-1 parking lot and at the HOME Fair.

"We wanted the event to end a little closer to the Agency Fair than in previous years," said Werne. "The purpose is to get people to walk around and learn more about the agencies. That's really what this whole thing is about."

All race participants must line up at 11:45 a.m. The race will begin shortly after, with skaters going first, and runners and walkers following. Centipedes and costumed runners are also encouraged to participate (note: this year no awards will be given out for best costume).

All race participants will receive a T-shirt and pin, along with their free lunch.

## Swim for HOME

The Swim for HOME, introduced last year, will return to the Lab pool and will take place at approximately the same time as the run. Participants can head over to the pool any time between 11 a.m. and 12:30 p.m. and swim the 800-meter race. LLESA has waived the pool admission fee for those swimming for HOME. Because of limitations of the pool, swimmers will start and be timed on an individual basis.

## Awards ceremony

An awards ceremony will be held at 12:45 p.m. at the main stage area. Johnson Controls, LLESA and the Director's Office will provide \$800 in checks worth \$50 each to the winners of the run, skate and swim. Those checks are then turned over to the winner's charity of choice. Wayne Shotts, the associate director for NAI, will emcee the awards ceremony.

## Site 300

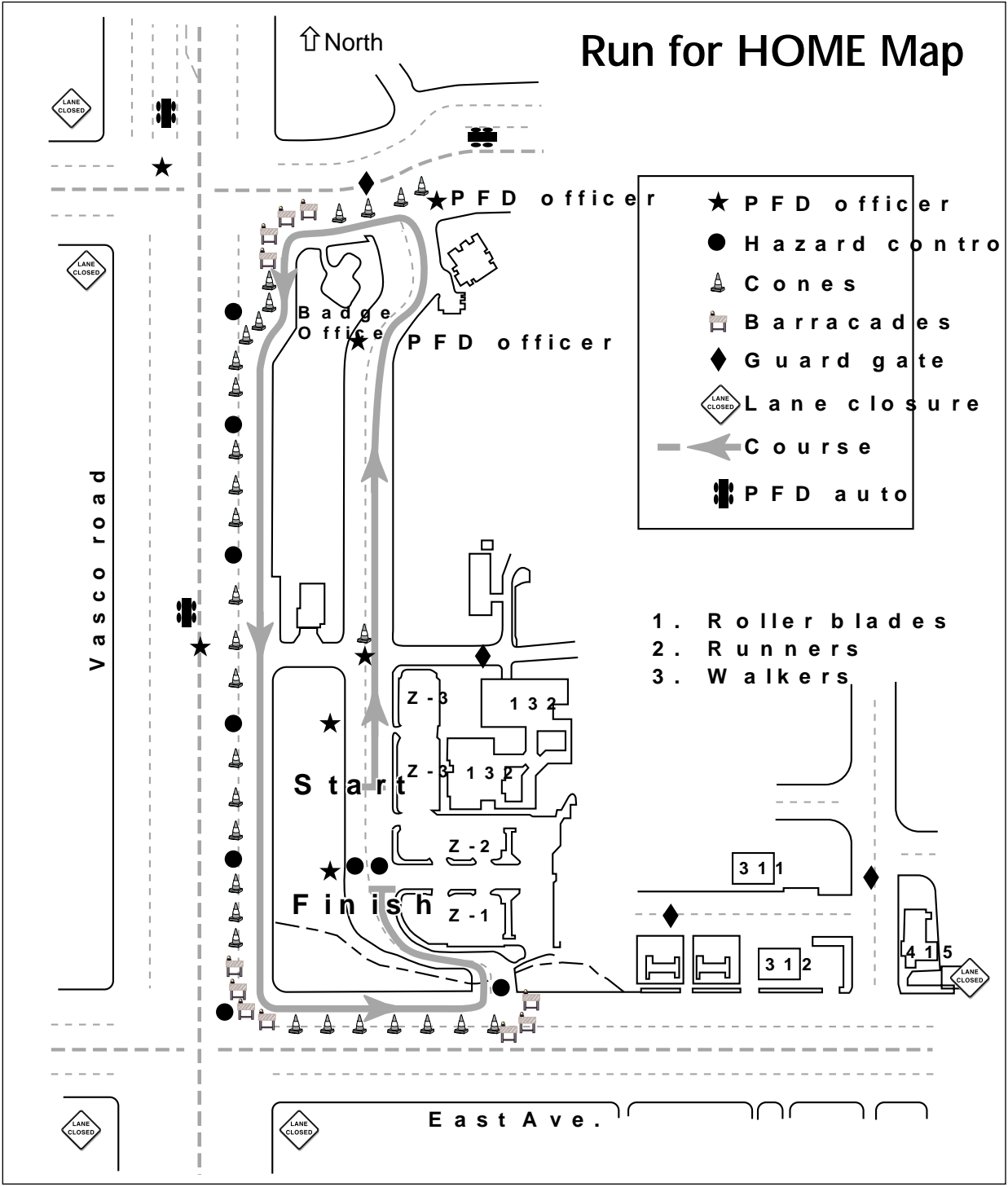
While the race is on at the main Lab site, Site 300 will hold it's own run/walk for HOME. Prizes will also be awarded to the race winners.

## HOME needs volunteers

If you're not one for walking, running, skating or swimming in HOME Campaign's annual Run and Agency Fair, then how about helping out.

The NAI Directorate, sponsor of this year's run and fair, needs volunteers to help out during the run. If you have an hour to spare, call Julie Cox at 3-1308. Approximately 100 volunteers are needed.

An organizational meeting will be held at 1:30 p.m. Wednesday, Oct. 25, in the Bldg. 132S auditorium (you must have a Q or L badge).





# Women's symposium focuses on forging the future

By Lynda Seaver

NEWSLINE STAFF WRITER

When the biennial women's symposium convenes for the fifth time, emphasis will move away from past symposia's highlighting of present-day accomplishments. Instead the focus will be on the future — specifically the role women will play in shaping it.

"Titled LLNL 2020: Women Forging the Future of Science and Technology," the two-day conference will take place Oct. 26 and 27 at the San Ramon Marriott. Registration is now closed.

The conference was formally known as the Women's Technical and Professional Symposium. But in taking on the role of chairing the conference, Cheryl Krossa said it was important to move away from "look at what we have achieved" and now concentrate on "where are we going?"

Hence the new title, along with a new program format.

A key element of "LLNL 2020" is the understanding and acceptance that "all women, regardless of job title or the roles they play, are an integral part of shaping the future of our world, just as they have played a role in shaping each of the organizations represented at the Lab," explained Krossa, of the Affirmative Action & Diversity Program. AADP is sponsoring the conference.

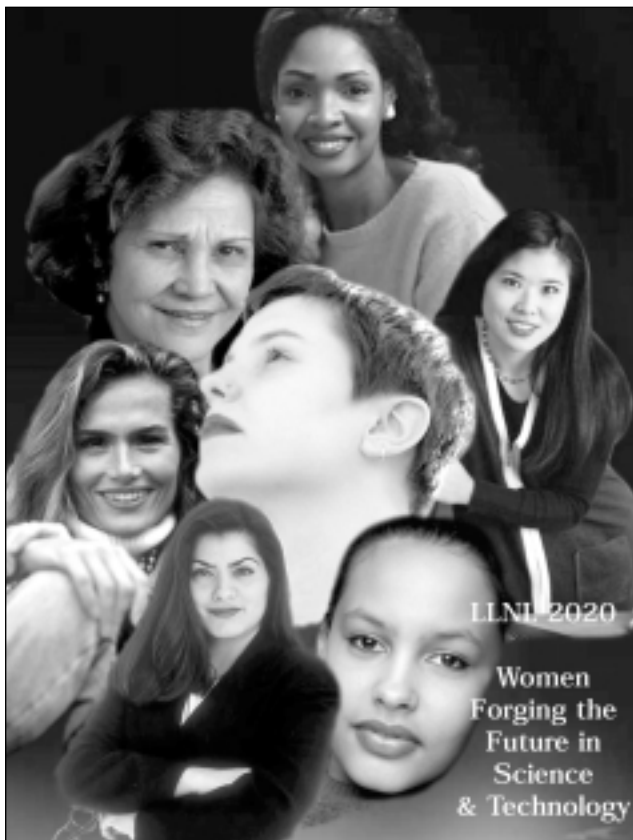
"Women are vital in forging and shaping the future of our world, and science and technology will play a key role in the creation of this future." The conference attracts primarily Laboratory women, but representatives from Sandia, Los Alamos and Lawrence Berkeley labs, the Stanford Linear Accelerator Center, NASA, the UC Office of the President and DOE Oakland will also be in attendance.

While keynote speakers and focus group discussions will look toward the future, the conference will still showcase women's contributions via poster sessions and other discussions. It also provides attendees with the opportunity to gain greater insight into the Lab's myriad research, and network with management and peers.

Gone from previous conferences are the paper presentations. Instead, the focus will be on keynote speakers and group discussions, with emphasis on participation among the attendees.

"The organizing committee wanted this conference to be inclusionary," Krossa said. "That's

really what drove the diversity of the conference's offerings. This will be technological and audience friendly, with an emphasis on the attendees being able to ask and get the answers to "what's in it for me?" "



Among the keynote speakers are San Diego State professor and education reform advocate Shirley Weber on "Women Forging the Future;" KRON medical reporter and physician Kim Mulvihill on "Medicine and the Media;" renowned nuclear chemist Darleane Hoffman on "The New Millennium;" business consultant Debra Crumpton on "Leaderpower: The New Model for Success," and U.S. Assistant Attorney General Lois Schiffer on "Science and the Law — A View From the Justice Department's Environment Division."

Other speakers include Director Bruce Tarter, who will discuss workforce issues in the opening remarks of the conference. A special panel discussion will kick off the second day of the conference. Titled "Conversations on the Future of Science and Technology," panelists will include Deputy Director Jeff Wadsworth, Sandia Vice President Mim John, Helen Quinn of the Stanford Linear Accelerator Center, Rita Bajura, director of the National Energy Technology Laboratory in Morgantown, W. Va., and Pittsburgh, and Jill Cornell Tarter, director of the Search for Extraterrestrial Intelligence Institute. Susan Houghton, the Lab's Media Relations manager, will moderate the panel.

Each day a few hours will be set aside for focus group discussions. Among the topics for Thursday are "The Color of Science," "Emerging Technologies and Workforce Challenges in Lasers and Photonics," "Entrepreneurial Perspective: Creating Your Own Future," "Genetic Diseases: Testing/Prevention/Treatment," "LLNL Culture," and "The Future of Public and Private R&D." Scheduled for Friday morning: "Computing & Communication in 2020," "Energy Needs in the 21st Century," "From Genes to Proteins," "Nuclear Deterrence: Proliferation Control," "Nutrition and Exercise," and "Roads Less Traveled: Lab Women in Nontraditional Careers."

Friday afternoon's sessions include: "Nuclear Deterrence II: Stockpile Stewardship,"

"Environmental Threats: Public Perceptions vs. Scientific Evidence," "Bioterrorism," "Emerging Security Threats," "Work-Life Balance," and "Navigating the Halls of Washington, DC."

Krossa cautions participants to choose their focus groups wisely — the discussions will be going on simultaneously. The organizing committee decided to schedule these groups simultaneously in order to provide more time for in-depth discussion. "You have to pick your passion and pursue it," she said. "Each is a mini-symposium, with panelists drawn from local and national experts to provide a variety of perspectives."

"This conference truly does have something for everyone," Krossa summed up. "I want to see people walk away not only with answers to their questions, but also asking more questions, and now possessing the passion to pursue those answers."

"That's what forging the future is all about."

For more information on "LLNL 2020: Women Forging the Future of Science and Technology," including conference schedules, bios of the speakers and lists of focus group panelists and moderators, see the Web at <http://www.llnl.gov/2020>, or contact 2-9544 or [llnl2020@llnl.gov](mailto:llnl2020@llnl.gov)

## Newsline calendars, ads on the Web

Today's issue of Newsline is largely dedicated to Family Days, which take place Saturday and Sunday, Oct. 21 and 22.

This issue of Newsline will serve as the guide for visitors during Family Days. (Additional copies of the paper will be handed out upon entering the Lab either Saturday or Sunday).

Regular features in Newsline, such as the Classified Ads, the Weekly Calendar and the Technical Meeting Calendar, do not appear in this issue so that we may devote more coverage to what to see and do during Family Days.

Classified Ads, the Weekly and Technical Meeting Calendars and the job listings will return to Newsline next week.

In the meantime, the calendars can be found on the Newsstand Website, at <http://www.llnl.gov/PAO/Newsstand/internal-comm.html> The Classified Ads can be viewed at <https://www-ais/llnl.gov/newsline/ads>

If you have a classified ad that you would like to run again next week, it is best to delete the ad from the system, located at <https://www-ais/llnl.gov/newsline/ads> and resubmit the ad by close of business Tuesday, Oct. 24.



## FROM THE DIRECTOR

Continued from page 1

Also on view will be some of the world's fastest supercomputers, a cornerstone of DOE's program to ensure the security, safety and reliability of the nation's nuclear stockpile without exploding nuclear devices beneath the Nevada desert. The Accelerated Strategic Computing Initiative (ASCI), a collaboration with IBM, has provided Lab scientists and engineers with unprecedented capability to do three-dimensional modeling of weapons performance. Visitors to Bldg. 451 will glimpse the next-generation supercomputer system, ASCI White. A look at research and development across the Lab makes it clear that high-performance scientific computing is central to all Laboratory programs.

Visitors will also have an opportunity to learn more about Laboratory activities to curb the proliferation of weapons of mass destruction and other efforts to reduce the global nuclear danger. The Lab is involved in many other activities of national and international importance.

Even those of us who have worked at the Laboratory for many years tend to forget the wealth of research being conducted outside our respective disciplines. Family Days is an opportunity for us to get reacquainted with the intellectual gold mine our programs represent and to take pride in the Laboratory's rich and storied past.

Your support has, over the years, been, and continues to be, very important to the Laboratory's success. Thank you for coming to share in the excitement of the work we're doing to shape the future of science and technology in the 21st century.

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